FIVE NEW PARASITIC FLIES REARED FROM BEETLES IN CHINA AND INDIA

By J. M. Aldrich

Associate Curator, Division of Insects, United States National Museum

The five species of Diptera here described were reared by economic entomologists while searching in the Orient for parasites of injurious beetles, with a view to the introduction of such parasites into the United States and Hawaiian Islands.

Family PYRGOTIDAE

Genus CAMPYLOCERA Macquart

Campylocera Macquart, Dipt. Exot., vol. 2, pt. 3, 1843, p. 220.

CAMPYLOCERA HIRSUTA, new species

In Hendel's key to the species of this genus[1] the present species would run to *thoracalis*, which however has shining black stripes on the dorsum of the thorax.

Female.—Head entirely brownish yellow, front opaque, near vertex 0.37 of head width. The eyes approximate each other more closely at the middle of the face, where the intervening space is 0.34 of head width. Parafacial shining, about half the width of the third antennal joint; antennal grooves translucent; from the inner edge of the facial ridges a flat opaque slender depressed area extends down around the lower curve of the eye, occupying the greater part of the width of the cheek. Antennae yellow, first joint short, second and third of equal length on upper edge, the third about twice as long as wide. Arista slender, yellow at base; palpi pale yellow, broad. Thorax wholly yellow, shining, with rather dense erect dark hair above, which is paler in some lights. The bristles of the middle of the dorsum and the humeri are not distinguishable from the hairs. There are two distinct notopleural, one supraalar, two postalar, and a single pair of dorsocentral bristles just before the scutellum. The latter has four good-sized marginal bristles and some slender long hairs.

[1] Archiv für Naturgeschichte, vol. 79, 1913, p. 92.

Abdomen yellow, somewhat brownish above, the basal joint much shorter and broader than in *Adapsilia flaviseta*, the remaining segments also shorter. The posterior or apparent sixth segment is nearly twice as long as all the rest of the abdomen, compressed, and at the tip turned downward; the first abdominal segment has a cluster of long hair on each side near its tip; the following segments are more hairy in the middle, while the posterior has dense long hair all over, which becomes a little more delicate apically. All of the hair of the abdomen is brown or blackish.

Legs yellow, femora somewhat thickened, the hind femora with two or three partial rows of conspicuous bristles on the upper side of the apical third.

Wing subhyaline with a dark shadow on the fork on the origin of the second vein, narrow dark margins on the cross veins and an infuscation of the tip beginning at the hind cross vein. The third vein ends exactly in the tip of the wing, the costa continuing very slightly beyond it, the fourth vein bends rather strikingly backward near the margin of the wing and becomes almost evanescent, its last section is more than double the preceding, the distance between the cross veins being about three-fourths of the length of the hind one.

Length, in the normal curved position, 5.2 mm.

Described from two females bred from ruteline beetles of the genus *Adoretus* at Tąihoku, Formosa, by D. T. Fullaway.

Type.—Female, Cat. No. 40984, U.S.N.M.

Genus ADAPSILIA Waga.

Adapsilia Waga, Ann. Soc. Ent. Fr., vol. 11, 1842, p. 280.

ADAPSILIA FLAVISETA, new species

In Hendel's key to the genus[2] the species would go in the first division, with the scutellum hairy on the disk, but readily separates from the two species included there by Hendel. It differs from both in having the wing infuscated throughout except the second basal and anal cells and the basal portion of the discal; the color is deepest between the second and third veins and a little behind the third. The second vein has an appendage as in *magnicornis*, which, however, has a transverse infuscated band on the wing.

It is more closely related to *trinotata* De Meijere,[3] which, however, is considerably paler in color, with the pleurae chiefly yellow and a different color pattern in the wing.

Female.—Head dark reddish brown, facial carina, inner part of facial ridges, epistoma, and a triangular spot below the eye shining black. Back of head opaque black except along the eye and a semi-

[2] Archiv für Naturgeschichte, vol. 79, 1913, p. 81.
[3] Tijdsch. Entom., vol. 57, 1914, p. 182.

circular occipital spot reaching almost to the neck, which are dark yellow; front opaque, at the vertex 0.40 of head width, the parafrontal shining, narrow above, widening at the antennae. Parafacial also shining, as wide as the third antennal joint. Antennae considerably elongated, dark brown, the basal joint a little lighter, second and third of about equal length; third rounded at apex; arista yellow. Palpi dark brown. Thorax black, not very shining, the scutellum and a very narrow postscutellum immediately below it yellow; the humeri are partly yellow and there is an irregular yellow spot around them extending part way to the center and back above the notopleural bristles to the suture.

Abdomen black, with a yellow band across the first segment prolonged backward at the edges, another including most of the dorsum of the fifth segment, and a large spot beyond the middle of the last or sixth segment. This segment is considerably smaller than the entire preceding part, irregularly constricted and bent downward. The first segment has a considerable cluster of long black hairs on each side at the base and on the sternites of the rest of the segments there is a cluster of such hairs on each side. The last segment has rather dense long hair all over the basal half. All of the hairs mentioned are black.

Legs black, all the femora slightly yellow below at apex, the femora stout and slightly grooved toward the apex for the reception of the tibia, the ridges bounding the groove being provided with rather stout slanting small spines. The front and middle tibiae are noticeably thickened from the middle, the hind ones from the first third, of their length; the middle tibiae have a distinct but not very stout curved spine at tip.

Wing as described, the costa extending to the fourth vein but becoming weaker after the third, which ends very slightly before the apex. Hind cross vein at right angles to the axis of the wing, last section of the fourth vein twice the preceding.

Length, 9 mm.

Described from five specimens, all of which appear to be females, bred at Shillong, India, from ruteline beetles by C. P. Clausen.

Type.—Female, Cat. No. 40983, U.S.N.M.

Family TACHINIDAE

SIGELOTROXIS, new genus

Allied to *Phrynofrontina* Townsend (type *convexa* Townsend, equals *Sturmia discalis* Coquillett), with which it agrees in having wide, bowed parafacials and many other characters, but from which it differs in having the parafacials bristly over half way, no costal spine, no discals, minute ocellars, etc. It also resembles *Ptychomyia*

Brauer and Bergenstamm (type, *Tachina selecta* Meigen), but differs in having no discals, the ocellars on the triangle, not widely spaced opposite the front ocellus.

The principal characters are as follows: Antennal axis one and a half times the vibrissal, face curved, more receding below, parafacials rather wide; facial ridges prominent, bristly half way or more; both sexes with orbitals, only one frontal below origin of antennae; eyes bare; palpi normal, proboscis short; third antennal joint long and slender, arista bare, vibrissae at oral margin; third vein with two large setules at base, first bare; fourth vein broadly curved almost in a right angle, straight for a distance, then concave to costa, the first posterior cell closed in the margin only a little before the wing tip; costal section from first to second vein only a little shorter than from second to third; hind cross vein straight, semierect, barely beyond middle between small and bend.

Type of genus.—*Sigelotroxis parvus*, new species.

SIGELOTROXIS PARVUS, new species

Male.—Front 0.35 of head width; head with pale yellow pollen, frontal stripe brown, as wide above as both parafrontals; at least one proclinate orbital; palpi yellow apically, darker toward base; first two antennal joints reddish, third brown, very long and quite slender, fully five times the second; arista yellow basally, short, thickened about half way; cheek one-half the eye height. Thorax black, cinereous; scutellum broadly reddish. Chaetotaxy; acrostichal 3, 3; dorsocentral 3, 4; supraalar 3; intraalar 2; postalar 2; humeral 2; posthumeral 1; presutural 2 (inner small); notopleural 2; sternopleural 2, 1; scutellum with 3 lateral, a large pair of apicals and a smaller discal pair. Hypopleurals and post-scutellum as usual; calypters ivory white. Abdomen rather short, subshining black, a narrow band of pale pollen at base of third segment, fourth more than half pollinose. First abdominal segment without median marginals, second with a pair, third with row of six, fourth irregularly bristly except at base. Genital segments small, black. Legs black, pulvilli small, mid tibiae with one bristle on outer front side, hind tibia subciliate. Wings hyaline.

Female.—Front 0.35 of head width; third antennal joint four times the second, probably two orbitals.

Length, 4.5 to 6 mm.

Described from three males and two females, reared from ruteline beetles at Foochow, China, in 1897 by C. R. Kellogg, received from the Hawaiian Sugar Planters' Experiment Station, to which two paratypes are returned.

Type.—Male. Cat. No. 40985, U.S.N.M.

Genus PEXOMYIA Brauer and Bergenstamm

Pexomyia Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 329; pt. 6, 1893, p. 114.—Brauer, Verh. Zool.-Bot. Ges., vol. 102, 1893, p. 476; vol. 107, 1898, p. 543.—Baer, Die Tachinen, 1921, p. 78.—Stein, Arch. Naturgesch., vol. 90, 1924, p. 99.

The genus originally included *Masicera rubrifrons* Perris and *Roeselia aberrans* Egger; the former was designated as type by Brauer in 1893, and Bezzi, in the Palaearctic Katalog, makes the latter a synonym.

Two males of *rubrifrons* in the United States National Museum, determined by Professor Bezzi, differ from *Centeter* in having bare eyes and parafacials, the vibrissal axis somewhat longer, and the prominent facial ridges with only weak bristles less than half-way up. Discal bristles occur on the second and third segments, and a discal row is present on the fourth. The habits of *rubrifrons* seem to be unknown.

The three related genera attacking ruteline beetles may be separated by the following key.

KEY TO CENTETER, SIGELOTROXIS, AND PEXOMYIA

1. The upper part of parafacial with distinct hairs anteriorly; eyes hairy.
Centeter Aldrich.

Upper part of parafacial entirely bare; eyes bare ..... 2.

2. Facial ridges bristly to middle or above, discals absent on intermediate abdominal segments; scutellum with no small apical pair of bristles.
Sigelotroxis Aldrich.

Facial ridges bristly only below middle; discals present or absent; a small pair of apical scutellars present between the large third lateral pair.
Pexomyia Brauer and Bergenstamm.

PEXOMYIA GENALIS, new species

Female.—Front at vertex 0.41 of head width, parafrontal slightly wider than median stripe, which is dark red and continues on each side of ocellar triangle to inner vertical; frontals eight, extending to tip of second antennal joint, upper two reclinate but not large; two pairs of orbitals; parafacial wide; cheek equal to one-half the eye height. Pollen of head decidedly yellow above, grayish-yellow on parafacial, in front view the color changing suddenly below the lowest frontal.

Antennae reddish yellow nearly to middle of third antennal joint, the remainder blackish; the third joint four times the second. Arista thickened and yellow almost one-half way; basal joints short; vibrissae at oral margin with six or seven small decreasing bristles

above on facial ridges, which are decidedly prominent and sharp; ocellars proclinate and divaricate, outer verticals minute. Palpi yellow, of ordinary size; proboscis small. Cheek and back of head with only black hairs. Thorax with yellowish pollen, black in ground color, but with a reddish tinge on the apical part of scutellum. Mesonotum with a pair of blackish stripes and a distinct triangular black spot in front of inner presutural; also an elongated spot behind the suture. Chaetotaxy: Acrostichal 3, 3; dorsocentral 2, 4; humeral 3; posthumeral 2; presutural 2 (inner two-thirds as long as outer); notopleural 2; supraalar 3; intralar 3; postalar 2; sternopleural 2, 1; scutellum with three lateral, one discal, and a smallish divergent apical pair; postscutellum well developed; posterior calypter yellowish white.

Abdomen with yellowish-gray pollen on last three segments, more dense on the fourth, on the two preceding becoming thinner posteriorly so as to show a black but not very shining ground color. Second segment with a pair of median marginals; third segment with or without distinct pair of discals and a marginal row of eight: fourth segment with a discal row of six, and a few apical.

Legs black; middle tibia with one bristle on outer front side, hind with a sparse row rather uniform, except one larger below middle.

Wing subhyaline, rather rounded in outline, bend of fourth vein with gradual curve, the first posterior cell open, or barely closed just before tip. Hind cross vein rather straight and erect, somewhat nearer to bend than to small cross vein; first vein bare, third with two or three bristles at base. Last section of fifth vein hardly one-third the preceding; costal segment beyond tip of second vein considerably more than half as long as the one before it.

Male.—Head somewhat shriveled; third antennal joint longer and wider than in female, black almost to base; it as wide as the parafacial; orbital bristles present as in the female. Genitalia quite small, black, the inner forceps distinctly separated, short, rather broad at tip; outer forceps with broad black base attached to segment, the free part abruptly tapering and slender, black with slightly rounded tips.

Length, 4–6 mm.

Described from four females and one male, received from Dr. J. L. King; they were reared from *Popillia japonica* Newman at Riverton, N. J., from material obtained in Japan; emerged July 24, 1925.

Type.—Female, Cat. No. 41452, U.S.N.M.

Genus CENTETER Aldrich

Centeter ALDRICH, Proc. U. S. Nat. Mus., vol. 63, art. 6, 1923, p. 3.

CENTETER CINEREA Aldrich

Centeter cinerea ALDRICH, Proc. U. S. Nat. Mus., vol. 63, art. 6, 1923, p. 4.—CLAUSEN and KING, Journ. Econ. Ent., vol. 17, 1924, p. 77.—SMITH, Journ. Econ. Ent., vol. 17, 1924, p. 110.—KING and HALLOCK, Journ. Econ. Ent., vol. 18, 1925, p. 351.—SMITH and HADLEY, U. S. Dept. Agr., Circular No. 363, 1926, p. 37.—WEISS, Circular No. 103, N. J. Bur. of Statistics and Inspection, 1926, p. 11.—CLAUSEN, KING, and TERANISHI, U. S. Dept. Agr., Bull. No. 1429, 1927, p. 4, figs. and col. plate.—KING, ALLEN, and HALLOCK, Journ. Econ. Ent., vol. 20, 1927, p. 366.

This species, type of the genus, has been introduced into the United States from Japan as a parasite of the beetle *Popillia japonica* Newm., and is now established here.

The receipt of better preserved material than the types shows that the eyes are hairy, and the generic description should be corrected accordingly.

KEY TO SPECIES OF CENTETER

Abdominal segments 1 to 4 broadly shining black on nearly the apical half; tibiae and femora black ..... cinerea Aldrich.
Whole abdomen covered with brownish-gray pollen, slightly tesselated; tibiae and tips of femora reddish ..... unicolor, new species.

CENTETER UNICOLOR, new species

Female.—With all the generic characters of *cinerea*, differing as noted in the key. The arista is yellow on basal half; there are no proclinate orbitals, but outside the frontal row there are sometimes one or two small mesially inclined bristles. Three lateral scutellar bristles are present, but the small apical pair of *cinerea* is absent; hence the third lateral pair might be described as a large apical pair. Eyes distinctly hairy. The front is very wide, being 0.45 of the head width at vertex (as compared with 0.41 in the female of *cinerea*).

Described from four females from Suigen, Chosen (Korea); three are labeled "May 13, 1926, col. K. Sato;" the other "Parasite of *Anomala sieversi* and *Phyllopertha* sp." The abdomen of one specimen has been dissected away to show several large, white eggs, of the same type as in *cinerea*.

Type.—Female, Cat. No. 41451, U.S.N.M.

In conclusion it might be well to add that *Sigelotroxis parvus* differs from both species of *Centeter* in having bare eyes, the front much less prominent, the parafacial bare above near the facial ridge as well as elsewhere, and the eye considerably larger.

○